



The need for an open access global directed antimicrobial treatment guideline

Heiman Wertheim

Clinical Microbiology Department, Radboud University Medical Center, Nijmegen, the Netherlands

The World Health Organization (WHO) recently stated that resistance to antimicrobials means ‘an end to modern medicine as we know it’. Antimicrobial resistance (AMR) leading to treatment failure of common infections is the greatest contemporary challenge in infectious diseases. The causes of AMR are complex, with inappropriate antimicrobial use in humans and animals as a key factor¹. The problem is particularly pressing in low- and middle-income countries (LMICs), where the high burden of infectious disease is compounded by treatment failures and due, in part, to AMR. Importantly, many doctors in LMICs have little or no access to simple, up-to-date and contextualised treatment guidelines that would provide them with the best available evidence on how to treat a specific disease, whether it is susceptible or resistant to available drugs. Up to date and evidence-based antibiotic treatment guidelines, are essential to facilitate appropriate use of antibiotics² but such a tool, which would require significant effort and input from experts to compile, is not available for most prescribers around the globe. WHO will release a syndromic, empiric treatment guideline. For directed therapies however, there is still a need. A [recent study](#) illustrated that only a few guidelines around the world include local etiological or resistance data.

Currently, online antimicrobial treatment guidelines are either commercial (payment required), restricted access or in a static format that cannot be easily adapted or updated. Furthermore, most guidelines have been developed for high-income countries and are often not applicable to LMIC settings or are confined to specific patient groups (e.g. HIV/AIDS-patients, TB and paediatric). There is clearly a need for a core directed antimicrobial treatment guideline that can be adapted by anyone, anywhere in the world, comparable to the world wide availability of Wikipedia in multiple languages. We propose to develop a core, consensus antimicrobial treatment guideline for directed therapies for the majority of infectious diseases (bacteria, mycobacteria, parasites, fungi and viruses). The guideline should incorporate specific advice for complicated circumstances such as

resistance, allergies, pregnancy or major co-morbidities. The final product should be made compatible for different browsers and devices (desktop, laptop, smartphone and tablet). It will allow users to find the treatment advice needed using various search strategies. The developers should only use open source software to avoid the requirement for license fees, thus ensuring that the website is economically sustainable for the long-term. Off-line use will also be supported with push notifications if updates are available. Translation of the guideline into other languages and local modification will be encouraged, but will not fall under the responsibility of the core editorial team. The implementation and use will be monitored.

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disease experts (including paediatrics and representatives of other relevant specialist groups). We envision a crowd sourcing project which includes expertise from resource-constrained settings and contributions will largely be done through acknowledging contributors for intellectual input. The crowd sourcing nature of this project will allow it to continue and be updated after the duration of this project. WHO supports such an initiative, which is highly relevant for worldwide acceptability and application. ISAC, APUA and stakeholders discussed this project during ECCMID in Amsterdam in 2019. There is broad support of this initiative and over the coming months we will develop what is meant by directed therapy.

There is considerable inappropriate use of antimicrobials worldwide, often due to lack of knowledge and lack of access to evidence and updated guidelines. Providing access to a comprehensive, open access, up-to-date and evidence based knowledge-base that outlines how to treat a particular infectious disease is key to improving treatment outcomes

worldwide. In addition, the availability of global evidence-based guidelines may help local professional bodies of health care workers to advocate for the availability of essential antimicrobial drugs. They may also be the starting base for local guidelines, adapted to the best available local evidence. Moreover, this tool will provide a much needed reference standard for the assessment and improvement of local prescribing practices, as well as a benchmark against which future antimicrobial stewardship interventions can be assessed. Finally, this guideline will define key diagnostic decision points to determine treatment, and provide an authoritative platform to inform WHO and other international health organisations.

References

1. Laxminarayan R *et al.* Antibiotic resistance—the need for global solutions. *The Lancet Infectious Diseases* 2013;13:1057-1098.
2. Bochicchio GV *et al.* Pilot study of a web-based antibiotic decision management guide. *J Am Coll Surg* 2006; 202:459-467.
3. Bennett J *et al.* Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases: 8th edition; Saunders; 2014.
4. Bright TJ *et al.* Development and evaluation of an ontology for guiding appropriate antibiotic prescribing. *J Biomed Inform* 2012;45:120-128.
5. Gordon CL *et al.* Design and evaluation of a bacterial clinical infectious diseases ontology. *AMIA Ann Symp Proc* 2013;502-511.



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